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Subject system consists of five main loops: (1) measuring loop; (2) phase discriminator; (3) stabilizing loop; (4) output loop; and (5) controlled loop (object of regulation) which consists of a synchronous 400-cycle oscillator with exciter and a dc driving motor. The regulator, consisting of the first four loops, reacts against deviations in frequency and controls the excitation of the drive motor.

The electronic frequency regulator with tuning fork as the calibrating standard is the most highly perfected of existing frequency regulators for synchronous oscillators. This type of regulator finds practical application in other areas. The accuracy of frequency regulation is assured by the fact that the frequency quality and stability of the tuning fork considerably exceeds those of the oscillator circuit, which it replaces. To eliminate fluctuations in the oscillator, which are able to arise in such a system of fine frequency regulation, it is sufficient to include, in the construction of the regulator, a special stabilizing loop which represents essentially an RC-type blocking filter. Regulators of the type considered here can be designed in accordance with the proposed computational formulas, which represent the main contents of the article. N. N. Lenov and N. V. Pautin aided with the numerical analysis.

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